The Sixteenth International Symposium on ARTIFICIAL LIFE AND ROBOTICS (AROB 16th '11)

January 27 (Thursday)
Room E: 10:30-10:55

Opening Ceremony
   Chair: J. M. Lee (Pusan National University, Korea)

   Welcome Addresses
1. General Chairman of AROB   M. Sugisaka (Nippon Bunri University, Japan)

2. President of NBU   T. Hirai (Nippon Bunri University NBU, Japan)

3. Vice Chairman of AROB   H. Tanaka (Tokyo Medical & Dental University, Japan)

4. Vice Chairman of AROB   J. J. Lee (KAIST, Korea)

5. Vice Chairman of AROB   H. H. Lund (Technical University of Denmark, Denmark)

6. Vice Chairman of AROB   Y. Jia (Beihang University, P. R. China)

January 28 (Friday)
Hotel Shiragiku: 18:30-21:00

AROB Award Ceremony
   Chair: K. Naitoh (Waseda University, Japan)
Banquet
   Chair: Y. I. Cho (Suwon University, Korea)

   Addresses
       Y. G. Zhang (Academia Sinica, China)
       Y. Ishida (Toyohashi University of Technology, Japan)
       T. Arita (Nagoya University, Japan)
       J. M. Lee (Pusan National University, Korea)
       K. L. Su (National Yunlin University of Science & Technology, Taiwan)
       L. Pagliarini (Technical University of Denmark, Denmark)

TECHNICAL PAPER INDEX

January 27 (Thursday)

Room G
10:55~11:45 Plenary Talk
Chair   Y. G. Zhang (Academia Sinica, China)

PT1   *Development Outline of Humanoid Robot: HUBO II*
      J. H. Oh (KAIST, Korea)

Room A
12:40~14:25 Invited Talks
Chair   M. Nakamura (Research Institute of Systems Control, Japan)

IT1   *Human-Robot Interaction and Social Relation*
      M. Imai (Keio University, Japan)
IT2   *Micro Nano Robotics*
      T. Arai (Osaka University, Japan)

January 28 (Friday)

Room G
10:15~11:05 Plenary Talk
Chair   J. J. Lee (KAIST, Korea)

PT2   *Data-driven two degree-of-freedom control for a micropump and microneedle integrated device for diabetes care*
      Ruoting Yang (Washington University, USA)
      Mingjun Zhang (University of Tennessee, USA)
      T. J. Tarn (Washington University, USA)

14:50~15:40 Plenary Talk
Chair   H. H. Lund (Technical University of Denmark, Denmark)

PT3   *Rescue Robot Systems   - From Snake-like Robots to Human Interface -*
      F. Matsuno (Kyoto University, Japan)

January 29 (Saturday)

Room F
13:10~14:55 Invited Talks
Chair   Y. I. Cho (Suwon University, Korea)

IT3   *Quantifying "Waza" in Nihon-Buyo Dance Movements*
      M. Sakata (Doshisha University, Japan)
IT4   *Social playware for mediating tele-play interaction over distance*
      H. H. Lund, T. Thorsteinsson (Technical University of Denmark, Denmark)
IT5   *An Educational Tool for Interactive Parallel and Distributed Processing*
      L.Pagliarini (Technical University of Denmark, Denmark / Academy of Fine Arts of Bari, Italy)
      H. H. Lund (Technical University of Denmark, Denmark)

January 27 (Thursday)

8:00~Registration

Room A
9:10~10:25   OS1【System sensing and control I】
Chair: M. Uchida (The University of Electro-Communications, Japan)
Co-Chair: T. Mizuno (Tokyo Polytechnic University, Japan)

OS1-1 *Analysis of speech signal based on frequency distribution and intonation*
  Naoya Ohta, Akio Nozawa (Meisei University, Japan)

OS1-2 *Color influences on human being evaluated with nasal skin temperature*
  Tota Mizuno, Naoki Nakategawa, Yuichiro Kume (Tokyo Polytechnic University, Japan)

OS1-3 *Air speed control of airship-type fish robot*
  Kunihiko Sato, Masafumi Uchida (The University of Electro-Communications, Japan)

OS1-4 *Regulated plus and minus power supply using approximate 2DOF robust digital control*
  Atsushi Saitoh, Yusuke Tsuruhori, Yoshihiro Ohta, Kohji Higuchi, Kazushi Nakano (The University
  of Electro-Communications, Japan)

OS1-5 *Angle-based neuro-fuzzy navigation for autonomous mobile robots*
  Shu Hosokawa, Joji Kato, Kazushi Nakano, Kazunori Sakurama (The University of
  Electro-Communications, Japan)

14:45~16:00   OS5【Advanced vehicle control】
Chair: S. Sagara (Kyushu Institute of Technology, Japan)
Co-Chair: M. Oya (Kyushu Institute of Technology, Japan)

OS5-1 *Robust active suspension control of vehicles with measurement noises*
  Katsuhiro Okumura (Fukuoka Industrial Technology Center, Japan)
  Hideki Wada (Shin-Nippon Nondestructive Inspection, Japan)
  Yuichiro Taira (National Fisheries University, Japan)
  Masahiro Oya (Kyushu Institute of Technology, Japan)

OS5-2 *A method to improve stability of adaptive steering driver-vehicle systems*
  Shingo Tamaru, Jinxin Zhuo, Qiang Wang, Masahiro Oya (Kyushu Institute of Technology, Japan)

OS5-3 *Robust controller for underwater vehicle-manipulator systems including thruster dynamics*
  Yuichiro Taira (National Fisheries University, Japan)
  Junpei Sugino (Kyushu Institute of Technology, Japan)
  Natsuki Takagi (Miyakonojo National College of Technology, Japan)
  Masahiro Oya (Kyushu Institute of Technology, Japan)

OS5-4 *Digital adaptive control of a winged rocket applicable to abort flight*
  Tomoaki Shimozawa, Shinichi Sagara (Kyushu Institute of Technology, Japan)

OS5-5 *A master-slave control system for semi-autonomous underwater vehicle manipulator system*
Kana Kawano, Tomoaki Shimozawa, Shinichi Sagara (Kyushu Institute of Technology, Japan)

16:05~17:20   OS3【Control and its application】
Chair: M. Yokomichi (University of Miyazaki, Japan)
Co-Chair: N. Takahashi (University of Miyazaki, Japan)

OS3-1 *Observer-based guaranteed cost control*
Erwin Susanto, Mitsuaki Ishitobi, Sadaaki Kunimatsu (Kumamoto University, Japan)

OS3-2 *Observer based control of a manipulator system with structured uncertainty*
Chikara Aikawa, Nobuya Takahashi, Osamu Sato, Michio Kono (University of Miyazaki, Japan)

OS3-3 *Analysis of manipulator in consideration of collision between link and object*
Asaji Sato (Miyakonojo National College of Technology, Japan)
Osamu Sato, Nobuya Takahashi, Masahiro Yokomichi (University of Miyazaki, Japan)

OS3-4 *Motion control of 2 DOF orthogonal robots with adaptive control*
Kazuma Funahashi, Feifei Zhang, Masanori Ito (Tokyo University of Marine Science and Technology, Japan)

OS3-5 *Development of 6-DOF force feedback system for rehabilitation of wrist paralysis*
Yasunobu Hitaka (Kitakyushu National College of Technology, Japan)
Yoshito Tanaka (Fukuoka Institute of Technology, Japan)
Yutaka Tanaka (Hosei University, Japan)
Tomonori Kato (Fukuoka Institute of Technology, Japan)

Room B
9:10~10:10   OS18【Data mining】
Chair: K. J. Mackin (Tokyo University of Information Sciences, Japan)
Co-Chair: T. Yamaguchi (Tokyo University of Information Sciences, Japan)

OS18-1 *Two-level time-series clustering for satellite data analysis*
Ayahiko Niimi, Takehiro Yamaguchi, Osamu Konishi (Future University Hakodate, Japan)

OS18-2 *PSP practice support system using defect types based on phenomenon*
Daisuke Yamaguchi (Toin University of Yokohama, Japan)
Ayahiko Niimi (Future University Hakodate, Japan)
Fumiyo Katayama, Muneo Takahashi (Toin University of Yokohama, Japan)

OS18-3 *Development and evaluation of satellite image data analysis infrastructure*
Akihiro Nakamura, Jong Geol Park, Kotaro Matsushita, Kenneth J. Mackin, Eiji Nunohiro (Tokyo University of Information Sciences, Japan)

OS18-4 *Application of neural network swarm optimization for paddy field classification from remote sensing data*
Kazuma Mori, Takashi Yamaguchi, Jong Geol Park, Kenneth J. Mackin (Tokyo University of Information Sciences, Japan)

12:40~14:25　　GS10　【Image processing I】
Chair: H. Yamamoto (Gifu University, Japan)

GS10-1 *Anomalous situations detection based on confluence*
　　　　Tatsuya Gibo, Shigeki Aoki, Takao Miyamoto, Motoi Iwata, Akira Shiozaki (Osaka Prefecture University, Japan)

GS10-2 *Automatic segmentation of liver region from non-contrast and contrast CT images employing tree-structural image transformations*
　　　　Masafumi Komatsu, , Guangxu Li, Hyoungseop Kim, Joo Kooi Tan, Seiji Ishikawa (Kyushu Institute of Technology, Japan)
　　　　Akiyoshi Yamamoto (Kyushu Institute of Technology and Kyoaikai Tobata Kyoritsu Hospital, Japan)

GS10-3 *Obstacle detection using a moving camera*
　　　　Shao Hua Qian, Joo Kooi Tan, Seiji Ishikawa, Takashi Morie (Kyushu Institute of Technology, Japan)

GS10-4 *Hardware implementation of a census-based stereo matching using FPGA*
　　　　Jiho Chang, Sung-Min Choi, Eul-Gyoon Lim, Jae-il Cho (Electronics and Telecommunication Research Institute, Korea)

GS10-5 *Hand detection using Adaboost*
　　　　Jae-chan Jeong (Electronics and Telecommunication Research Institute and University of Science and Technology, Korea)
　　　　Seung-min-Choi (Electronics and Telecommunication Research Institute, Korea)
　　　　Ho-chul Shin (Electronics and Telecommunication Research Institute and University of Science and Technology, Korea)
　　　　Jae-il Cho (Electronics and Telecommunication Research Institute, Korea)

GS10-6 *Improvement of early recognition of gesture patterns based on Self-Organizing Map*
　　　　Atsushi Shimada, Manabu Kawashima, Rin-ichiro Taniguchi (Kyushu University, Japan)

GS10-7 *Detection of a bicycle and its driving directions using HOG Feature*
　　　　Heewook Jung, Joo Kooi Tan, Hyeongseop Kim, Seiji Ishikawa (Kyushu Institute of technology, Japan)

14:45~16:00　　GS16　【Pattern recognition & Visualization】
Chair: K. Ikeda (Nara Institute of Science and Technology, Japan)

GS16-1 *Parts layout decision of cell production assembly line using generic algorithm system and virtual system*
　　　　Hidehiko Yamamoto, Tomokazu Watanabe, Takayoshi Yamada (Gifu University, Japan)
　　　　Masahiro Nakamura (LEXER RESEARCH Inc., Japan)
　　　　Rafat Hessen Elsayed Elshaer (Zagazig University, Egypt)

GS16-2 *Parallelizing fuzzy rule generation using GPGPU*
　　　　Takesuke Uenishi, Tomoharu Nakashima, Noriyuki Fujimoto (Osaka Prefecture University, Japan)

GS16-3 *Interactive musical editing system to support human errors and offer personal preferences for an automatic piano*
- A method for searching for similar phrases using DP matching -
Kenichi Koga, Kentaro Minowa, Eiji Hayashi (Kyusyu Institute of Technology, Japan)

GS16-4 *Subsurface imaging for anti-personal mine detection by Bayesian super-resolution with Smooth-gap prior*
Satoshi Kozawa, Takashi Takenouchi, Kazushi Ikeda (Nara Institute of Science and Technology, Japan)

GS16-5 *Construction of a sense of force feedback and vision for micro-objects*:
Development the Haptic Device's controlling
J.Noda, E.Hayashi (Kyushu Institute of Technology, Japan)

16:05~17:20   OS4【Intelligent Control】
Chair: Y-M. Jia (Beihang University, China)
Co-Chair: C. Jia (Beihang University, China)

OS4-1 *Feedback stabilization of linear systems with distributed input time-delay by backstepping method*
Chaohua Jia (Beijing University, China)

OS4-2 *Discrete-time iterative learning control for relative degree systems: a 2-D approach*
Deyuan Meng, Yingmin Jia (Beihang University, China)

OS4-3 *Distributed robust consensus control of uncertain multi-agent systems*
Yang Liu, Yingmin Jia (Beihang University, China)

OS4-4 *Switching synchronization in a heterogeneous agent network*
Lei Wang, Yang Liu, Qi-ye Zhang (Beihang University, China)

OS4-5 *Model matching adaptive control of time delay systems with unknown relative degree*
Haixia Su, Yingmin Jia (Beihang University, China)

Room C
9:10~10:10 OS2 【System sensing and control II】
Chair: H. Tanaka (Kogakuin University, Japan)
Co-Chair: A. Nozawa (Meisei University, Japan)

OS2-1 *Quantitative evaluation of body-sway caused by tactile apparent movement*
Kennichi Mogi, Masafumi Uchida (The University of Electro-Communications, Japan)

OS2-2 *A visual-taste interference model and the EEG measurement*
Hisaya Tanaka, Yuichi Sato (Kogakuin University, Japan)

OS2-3 *Dynamic analysis of dorsal thermal image*
Akio Nozawa, Yuya Takei (Meisei University, Japan)

OS2-4 *Feature extraction of human face image for preference database*
Yu Tachikawa, Akio Nozawa (Meisei University, Japan)

12:40~14:25 GS21 【Robotics V】
Chair: B.Fu (Sahnghai Jiao Tong University, China)

GS21-1 *Designing practical omni-directional mobile module in the robot hardware platform for common use*
　　　Moosung Choi, Sulhee Lee, Byungkyu Ahn, EunCheul Shin, Kwangyoong Yang, Hongseuk Kim (Korea Institute of Industrial Technology, Republic of Korea)

GS21-2 *New acoustic positioning system for under water robot using multiple frequencies*
　　　Xiu Jing Gao, Feifei Zhang, Masanori Ito (Tokyo University of Marine Science and Technology, Japan)

GS21-3 *Development of under water use humanoid robot*
　　　Yunyi Li, Eturo Shimizu, Masanori Ito (Tokyo University of Marine Science and Technology, Japan)

GS21-4 *Linear estimation method for position and heading with RDOA measurements*
　　　G. H. Choi (Yonsei Unversity, Korea)
　　　H. S. Cheon (Changwon National University, Korea)
　　　J. B. Park (Yonsei Unversity, Korea)
　　　T. S. Yoon (Changwon National University, Korea)

GS21-5 *Omnidirectional state-changing gripper for various objects*
　　　Kenjiro Tadakuma (Osaka University, Japan)
　　　Riichiro Tadakuma (Yamagata University, Japan)
　　　Hiroki Tanaka, Takuto Fukuda, Mitsuru Higashimori, Makoto Kaneko (Osaka University, Japan)

GS21-6 *Object co-occurrence graph for object search in 3D environment*
　　　Puwanan Chumtong, Yasushi Mae, Kenichi Ohara, Tomohito Takubo, Tatsuo Arai (Osaka University, Japan)

GS21-7 *Study on the wall climbing robot driven by the caterpillar tracks*
　　　Jiwu Wang, Yisong Wang, Weijie Gao (Beijing Jiaotong University, China)
　　　Sugisaka Masanori (Nippon Bunri University, Japan)

14:45~15:45 OS24【Human agent interaction toward social modification】
Chair: M. Imai (Keio University, Japan)
Co-Chair: H. Osawa (Japan Science and Technology Agency and Keio University, Japan)

OS24-1 *Social modification using implementation of partial agency toward objects*
　　　Hirotaka Osawa (Japan Science and Technology Agency, Japan)
　　　Seiji Yamada (National Institute of Informatics, Japan)

OS24-2 *Inducement of attention to agent through averting gaze from the other*
　　　Manami Suzuki, Yugo Takeuchi (Shizuoka University, Japan)

OS24-3 *Behaviors for getting conscious responses*
　　　　Toshihiro Osumi, Masato Noda (Keio University, Japan)
　　　　Hirotaka Osawa (Japan Science and Technology Agency, Japan)
　　　　Yuki Kuwayama (Keio University, Japan)
　　　　Kazuhiko Shinozawa (ATR, Japan)
　　　　Michita Imai (Keio University, Japan)

OS24-4 *Cross-modal effects between gestures and words in human robot interaction*
　　　　Takamasa Iio (Advanced Telecommunications Research Institute International and Doshisha
　　　　University, Japan)
　　　　Masahiro Shiomi, Kazuhiko Shinozawa, Takaaki Akimoto (Advanced Telecommunications
　　　　Research Institute International, Japan)
　　　　Katsunori Shimohara (Doshisha University, Japan)
　　　　Norihiro Hagita (Advanced Telecommunications Research Institute International, Japan)

16:05~17:20 GS3 【Artificial life II】
Chair: D. E. Kim (Yonsei University, Korea)

GS3-1 *Demand level investigation for future domestic system*
　　　　Shuki Inoue, Eiji Mimura (R&D Center The Kansai Electric Power Co., Inc., Japan)
　　　　Shingo Aoki, Hiroshi Tsuji (Osaka Prefecture University, Japan)

GS3-2 *Visualizing language evolution as an emergent phenomenon based on biological evolution and*
　　　　learning
　　　　Tsubasa Azumagakito, Reiji Suzuki, Takaya Arita (Nagoya University)

GS3-3 *Self-organizing stability of food web that emerges from the evolution of restrictions on speciation*
　　　　Hirofumi Ochiai, Reiji Suzuki, Takaya Arita (Nagoya University, Japan)

GS3-4 Modeling electrosensory system of weakly electric fish
　　　　Miyoung Sim, DaeEun Kim (Yonsei University, South Korea)

GS3-5 *Simultaneous cognitive origin of life and information*
　　　　Koji Ohnishi (Niigata University, Japan)

Room D
9:10~10:10　GS4 【Chaos & Complexity】
Chair: S. Nakayama (Kagoshima University, Japan)

GS4-1 *Study on discrete adiabatic quantum computation in 3-SAT problems*
　　　　Mohamed El-fiky, Satoshi Ono, Shigeru Nakayama (Kagoshima University, Japan)

GS4-2 *Fault-tolerant image filter design using particle swarm optimization*
　　　　Zhiguo Bao, Fangfang Wang, Xiaoming Zhao, Takahiro Watanabe (Waseda University, Japan)

GS4-3 *(p,q)-Duffing oscillators and nonlinear energy harvesting (**withdrawal**)*
　　　　Tokuzo Shimada, Takanobu Moriya, Hisakazu Uchiyama (Meiji University, Japan)

GS4-4 *A most simple, alternative non-computer-aided proof of the Four-Color Theorem*
　　　　Koji Ohnishi (Niigata University, Japan)

12:40~14:40   PS1 【Poster session】
Chair: J. J. Lee (KAIST, Korea)

PS1-1 *Authentication of the reconstructed image from Computer Generated Hologram:*
To use the digital watermark
Norihiro Fujii, Ken-ichi Tanaka (Meiji University, Japan)

PS1-2 *An aerial handwritten character recognition based on motion direction and ratio of*
stroke length
Y. Nishida (Fukui University of Technology, Japan)
K. Ogura, H. Miura, N. Matsuda, H. Taki (Wakayama University, Japan)
N. Abe (Kyushu Institute of Technology, Japan)

PS1-3 *Gamer robot for the rock-paper-scissors game by hand motion recognition*
Ho Seok Ahn, Dong-wook Lee, Hogil Lee (Korea Institute of Industrial Technology, Republic of
Korea)

PS1-4 *Analysis method of tooth meshing condition and motion of gears*
Edzrol Niza Mohamad, Masaharu Komori, Hiroaki Murakami, Aizoh Kubo (Kyoto University, Japan)

PS1-5 *Research for an adaptive user's intent-detection method for the use in rehabilitation robots*
Jun-Young Jung, Duk-Yeon Lee, DongWoon Choi, In-Hun Jang, Ho-Gil Lee, HyunSub Park,
Dong-Wook Lee (University of Science and Technology and Korea Institute of Industrial Technology,
Republic of Korea)

PS1-6 *Development of touch sensor system of silicone-type artificial skin for an interactive*
android robot
Duk-Yeon Lee, Dong-Wook Lee, Dongwoon Che, Hyun-Sub Park, Ho-Gil Lee, Jun-Young Jung
(Korea Institute of Industrial Technology, Republic of Korea)

PS1-7 *Remote control and conversation system between human and android robot via internet*
Dong-Wook Lee, Dongwoon Che, Jun-Young Joung, Hoseok Ahn, Hyunsub Park, Ho-Gil Lee
(Korea Institute of Industrial Technology, Republic of Korea)

PS1-8 *The optimal method of searching the effective combination of dither matrix*
Tsuneyasu Kato, Ken-ichi Tanaka (Meiji University, Japan)

14:45~16:00   OS17【Medical science and complex system】
Chair: K. Naitoh (Waseda University, Japan)
Co-Chair: T. Matsuo (Kanagawa Institute of Technology, Japan)

OS17-1 *The inevitability of the bio-molecules: five nitrogenous bases and twenty amino acids*
K.Hashimoto, H.Inoue, K.Naitoh (Waseda University, Japan)

OS17-2 *Engine for brain development: Similarity between engine and brain*
H. Kawanobe, K. Naitoh (Waseda University, Japan)

OS17-3 *Spatial surface wave spread network from Ambient Noise correlation*
Z. Zheng, K. Yamasaki, T. Fujiwara, N. Sakurai, K. Yoshizawa (Tokyo University of Information
Science, Japan)

OS17-4 *Effect of hot summer against environment which was induced by extra economical demand via Japanese Ecological Footprint*
      K. Yamasaki, T. Fujiwara, N. Sakurai, K. Yoshizawa, Z. Zheng (Tokyo University of Information Sciences, Japan)

OS17-5 *Blood flow velocity waveforms in the middle cerebral artery at rest and during exercise*
      T. Matsuo, S. Watanabe, M. Sorimachi, M. Kanda, Y. Ohta (Kanagawa Institute of Technology, Japan)
      T. Takahashi (Asahikawa Medical College, Japan)

16:05~17:35　　GS19 【Robotics III】
Chair: A. Nakamura (National Institute of Advanced Science and Technology, Japan)

GS19-1 *Design of the transmitting device for motion control of robots*
      Masaharu Komori, Jungchul Kang, Fumi Takeoka, Yukihiko Kimura (Kyoto University, Japan)

GS19-2 *Construction and basic performance tests of underwater monitoring network*
      Chunhu Liu, Bin Fu, Han Zhang, Lian Lian (Shanghai Jiao tong University, China)

GS19-3 *On the use of human instruction for improving the behavior of RoboCup soccer agents*
      Yosuke Nakamura, Tomoharu Nakashima (Osaka Prefecture University, Japan)

GS19-4 *Development of an autonomous-drive personal robot*
      "An environment recognition system using image processing and an LRS"
      Yasushi Kibe, Hideki Ishimaru, Eiji Hayashi (Kyushu Institute of Technology, Japan)

GS19-5 *Design of robotic behavior that imitates animal consciousness*
      －*Emotion expression of robotic arm based on eyeball movement*－
      Koichiro Kurogi, Kei Ueyama, Eiji Hayashi (Kyushu Institute of Technology, Japan)

GS19-6 *Development and experimental study of a novel pruning robot*
      S. Ueki (Toyota Colleges of Technology, Japan)
      H. Kawasaki (Gifu University, Japan)
      Y. Ishigure (Marutomi Seikou Co., Ltd., Japan)
      K. Koganemaru (Gifu University, Japan)
      Y. Mori (Hashima karyuu kougyou Ltd., Japan)

January 28 (Friday)

8:00~ Registration

Room A
8:40~9:55　　GS5 【Control techniques】
Chair: J. Murata (Kyushu University, Japan)

GS5-1 *Autonomous decentralized control scheme for large scale and dense wireless sensor networks with multiple sinks*
      Masahito Maki, Akihide Utani, Hisao Yamamoto (Tokyo City University, Japan)

GS5-2 *Advanced adaptive communication protocol for ubiquitous sensor networks*
  Shuichi Osawa, Akihide Utani, Hisao Yamamoto (Tokyo City University, Japan)

GS5-3 *Lateral control of unmanned vehicle using PD controller*
  Young Chul Cha(Pusan National University, Korea)
  Jong Il Bae(Pukyung National University, Korea)
  Kil Soo Lee, Dong Seok Lee, Yun Ja Lee, Man Hyung Lee (Pusan National University, Korea)

GS5-4 *A control method with pheromone information for transport system*
  Yoshitaka Imoto, Yasutaka Tsuji, Eiji Kondo (Kyushu University, Japan)

GS5-5 *Implementation of real-time distributed control for discrete event robotic manufacturing systems
using Petri nets*
  Gen'ichi Yasuda (Nagasaki Institute of Applied Science, Japan)

11:05~12:20 OS7 【Advanced technologies & Management skills】
Chair: T. Ito (Ube National College of Technology, Japan)
Co-Chair: Y. Uchida (Ube National College of Technology, Japan)

OS7-1 *An analysis of firm' capacity in Mazda's Keiretsu*
  R. Takida, T. Ito, S. Matsuno (Ube National College of Technology, Japan)
  K. Voges (University of Canterbury, New Zealand)
  Y. Ishida (Toyohashi University of Technology, Japan)
  M. Sakamoto (University of Miyazaki, Japan)

OS7-2 *An analysis of structure importance in Mazda's Keiretsu*
  S. Tagawa, R. Takida, T. Ito (Ube National College of Technology, Japan)
  R. Mehta (New Jersey Institute of Technology, USA)
  H. Hasama (Fukuoka Institute of Technology, Japan)
  M. Sakamoto (University of Miyazaki, Japan)

OS7-3 *A centrality analysis between transactions and cross shareholdings in Mazda's Keiretsu*
  E. Niki, R. Takida, T. Ito (Ube National College of Technology, Japan)
  R. Mehta (New Jersey Institute of Technology, USA)
  L. P. NG (Hoecheong Industries (Holding) Co., Ltd, China)
  M. Sakamoto (University of Miyazaki, Japan)

OS7-4 *Bottom-up pyramid cellular acceptors with four-dimensional layers*
  Yasuo Uchida, Takao Ito (Ube National College of Technology, Japan)
  Makoto Sakamoto, Takashi Ide, Kazuyuki Uchida, Ryoju Katamune,
  Hiroshi Furutani, Michio Kono, Satoshi Ikeda (University of Miyazaki, Japan)
  Tsunehiro Yoshinaga (Tokuyama College of Technology, Japan)

OS7-5 *Cooperating systems of four-dimensional finite automata*
  Yasuo Uchida, Takao Ito (Ube National College of Technology, Japan)
  Makoto Sakamoto, Kazuyuki Uchida, Takashi Ide, Ryoju Katamune,
  Hiroshi Furutani, Michio Kono (University of Miyazaki, Japan)
  Tsunehiro Yoshinaga (Tokuyama College of Technology, Japan)

13:15~14:45   OS10【Intelligent systems I】
Chair: K-L. Su (National Yunlin University of Science and Technology, Taiwan)
Co-Chair: J-H. Tzou (National Formosa University, Taiwan)

OS10-1 *The study of path error for an Omnidirectional Home Care Mobile Robot*
　　　Jie-Tong Zou (National Formosa University, Taiwan)
　　　Feng-Chun Chiang (WuFeng Institute of Technology, Taiwan)

OS10-2 *A* searching algorithm applying in Chinese chess game*
　　　Cheng-Yun Chung (National Yunlin University of Science and Technology, Taiwan)
　　　Te-Yi Hsu (Industrial Technology Research Institute, Taiwan)
　　　Jyh-Hwa Tzou (National Formosa University, Taiwan)
　　　Kuo-Lan Su (National Yunlin University of Science and Technology, Taiwan)

OS10-3 *Multi-robot based intelligent security system*
　　　Yi-Lin Liao, Kuo-Lan Su (National Yunlin University of Science and Technology, Taiwan)

OS10-4 *Implementation of an auction algorithm based multiple tasks allocation using mobile robots*
　　　Kuo-Lan Su, Jr-Hung Guo (National Yunlin University of Science and Technology, Taiwan)
　　　Chun-Chieh Wang (Chienkuo Technology University, Taiwan)
　　　Cheng-Yun Chung (National Yunlin University of Science and Technology, Taiwan)

OS10-5 *Fuzzy programming for mixed-integer optimization problems*
　　　Yung-Chin Lin (National Yunlin University of Science and Technology, Taiwan)
　　　Yung-Chien Lin (WuFeng University, Taiwan)
　　　Kuo-Lan Su (National Yunlin University of Science and Technology, Taiwan)
　　　Wei-Cheng Lin (I-Shou University, Taiwan)
　　　Tsing-Hua Chen (WuFeng University, Taiwan)

OS10-6 *Develop a vision based auto-recharging system for mobile robots*
　　　Ting-Li Chien (Wu-Feng University, Taiwan)

16:00~17:30   OS11【Control and automata】
Chair: K-H. Hsia (Far East University, Taiwan)
Co-Chair: K-L. Su (National Yunlin University of Science and Technology, Taiwan)

OS11-1 *Super-twisting second order sliding mode control for a synchronous reluctance motor*
　　　Huann-Keng Chiang, Wen-Bin Lin, Chang-Yi Chang (National Yunlin University of Science and Technology, Taiwan)
　　　Chien-An Chen (Automotive Research and Testing Center, Taiwan)

OS11-2 *Shape recognition applied in a semi-autonomous weapon robot*
　　　Chun-Chieh Wang, Chyun-Luen Lin (Chienkuo Technology University, Taiwan)
　　　Kuo-Lan Su (National Yunlin University of Science and Technology, Taiwan)

OS11-3 *Camera position estimation and feature extraction from incomplete image of landmark*
　　　Kuo-Hsien Hsia (Far East University, Taiwan)
　　　Shao-Fan Lien (National Yunlin University of Science and Technology, Taiwan)
　　　Juhng-Perng Su (National Yunlin University of Science and Technology and Overseas Chinese University, Taiwan)

OS11-4 *A novel variable structure theory applied in design for wheeled mobile robots*
    Chun-Chieh Wang (Chienkuo Technology University, Taiwan)

OS11-5 *Parameter identification of Lorenz system using RBF neural networks with time-varying learning algorithm*
    Chia-Nan Ko, Yu-Yi Fu, Cheng-Ming Lee, Guan-Yu Liu (Nan-Kai University of Technology, Taiwan)

OS11-6 *Motion planning of a landmine detection robot*
    Kuo-Lan Su (National Yunlin University of Science and Technology, Taiwan)
    Hsu-Shan Su, Sheng-Wen Shiao, Jr-Hung Guo (Yunlin University of Science and Technology, Taiwan)

Room B
8:40~9:55   OS8【Structural change detection for ongoing time series】
Chair: T. Hattori (Kagawa University, Japan)
Co-Chair: H. Kawano (NTT Advanced Technology, Japan)

OS8-1 *DP method for structural change detection as optimal stopping*
    ---- verification and extension ---
    Tetsuo Hattori, Katsunori Takeda (Kagawa University, Japan)
    Hiromichi Kawano (NTT Advanced Technology, Japan)
    Tetsuya Izumi (Micro Technica Co., Ltd., Japan)

OS8-2 *Change detection experimentation for multiple regression using ESPRT*
    ---- one variation is periodic function ---
    Katsunori Takeda, Tetsuo Hattori (Kagawa University, Japan)
    Hiromichi Kawano (NTT Advanced Technology, Japan)
    Tetsuya Izumi (Micro Technica Co., Ltd., Japan)

OS8-3 *Continuous change point detection for time series images using ESPRT*
    Katsunori Takeda, Tetsuo Hattori (Kagawa University, Japan)
    Hiromichi Kawano (NTT Advanced Technology, Japan)
    Tetsuya Izumi (Micro Technica Co., Ltd., Japan)
    Shinichi Masuda (C Micro Co., Ltd., Japan)

OS8-4 *DP method for structural change detection as optimal stopping*
    ---- experimentation in multiple regression model ---
    Hiromichi Kawano (NTT Advanced Technology, Japan)
    Tetsuo Hattori, Katsunori Takeda (Kagawa University, Japan)
    Tetsuya Izumi (Micro Technica Co., Ltd., Japan)

OS8-5 *Comparison of change detection methods for ongoing time series data*
    ---- extended SPRT, Chow Test, extended DP ----
    Hiromichi Kawano (NTT Advanced Technology, Japan)
    Tetsuo Hattori, Katsunori Takeda (Kagawa University, Japan)
    Tetsuya Izumi (Micro Technica Co., Ltd., Japan)

11:05~12:05　　GS8
【Human-machine cooperative systems & Human-welfare robotics I】
Chair: T. Fuchida (Kagoshima University, Japan)

GS8-1 *EMG control of a pneumatic 5-fingered hand using a Petri net*
　　　Osamu Fukuda, Jonghwan Kim (National Institute of Advanced Industrial Science and Technology, Japan)
　　　Isao Nakai, Yasunori Ichikawa (SQUSE Inc., Japan)

GS8-2 *Haptic warning method on steering behavior for urgent lane change situation*
　　　Jae-Woo Sim, Chi-Hoon Shin (University of Science and Technology, Korea)
　　　Young Woo Kim (Electronics and Telecommunication Research institute, Korea)

GS8-3 *Depth calculation by using Face detection ASIC*
　　　Seung Min Choi (Electronics and Telecommunications Research Institute, Korea)
　　　Jae-chan Jeong (University of Science and Technology, Korea)
　　　Jaeil Cho (Electronics and Telecommunications Research Institute, Korea)

GS8-4 *An experimental study on interactive reinforcement learning*
　　　Tomoharu Nakashima, Yosuke Nakamura, Takesuke Uenishi, Yosuke Narimoto (Osaka Prefecture University, Japan)

13:15~14:45　　GS2　【Artificial life I】
Chair: T. Arita (Nagoya University, Japan)

GS2-1 *Improved artificial bee colony algorithm for large-scale optimization problems*
　　　Ryuta Gocho, Akihide Utani, Hisao Yamamoto (Tokyo City University, Japan)

GS2-2 *Simulation of self-reproduction phenomenon of cells in two-dimensional hybrid-cellular automata model*
　　　Takeshi Ishida (Nippon Institute of Technology, Japan)

GS2-3 *A physics modeling of butterfly's flight control by GA and ANN and its over-evolution problem*
　　　R. Ooe, I. Suzuki, M. Yamamoto, M. Furukawa (Hokkaido University, Japan)

GS2-4 *Emergence of behavior intelligence on artificial creature in different virtual fluid environments*
　　　Keita Nakamura, Ikuo Suzuki, Masahito Yamamoto, Masashi Furukawa (Hokkaido University, Japan)

GS2-5 *Behavior emergence of virtual creature living in complex environments*
　　　Kenji Iwadate, Ikuo Suzuki, Masahito Yamamoto, Masashi Furukawa (Hokkaido University, Japan)

GS2-6 *Three-dimensional morphogenesis by cell division and death in viscoelastic amorphous computing*
　　　Eisuke Arai, Fumiaki Tanaka, Masami Hagiya (University of Tokyo, Japan)

16:00~17:30　　GS7　【Evolutionary computations】
Chair: P. Sapaty (National Academy of Sciences, Ukraine)

GS7-1 *A study on efficient query dissemination in distributed sensor networks*
　　　- Forwarding power adjustment of each sensor node using particle swarm optimization -
　　　Junya Nagashima, Akihide Utani, Hisao Yamamoto (Tokyo City University, Japan)

GS7-2 *Evaluation of a competitive particle swarm optimizer in multimodal functions with complexity*
　　　Yu Taguchi, Hidehiro Nakano, Akihide Utani, Arata Miyauchi, Hisao Yamamoto (Tokyo City University, Japan)

GS7-3 *An effective allocation method of ZigBee sensor nodes using a discrete particle swarm optimizer*
　　　Ryota Saito, Hidehiro Nakano, Akihide Utani, Arata Miyauchi, Hisao Yamamoto (Tokyo City University, Japan)

GS7-4 *An implementation of probabilistic model-building coevolutionary algorithm*
　　　Takahiro Otani, Takaya Arita (Nagoya University, Japan)

GS7-5 *Modeling and solution for optimization problems with incomplete information*
　　　-- A general framework and an application to cruising taxi problems --
　　　Makoto Ohara, Hisashi Tamaki (Kobe University, Japan)

GS7-6 *Prime number generation using memetic programming*
　　　Emad Mabrouk (Kyoto University, Japan)
　　　Julio César Hernández Castro (University of Portsmouth, UK)
　　　Masao Fukushima (Kyoto University, Japan)

Room C
8:40~9:55　　OS13【Intuitive human-system interaction】
Chair: M. Yokota (Fukuoka Institute of Technology, Japan)
Co-Chair: T. Oka (Nihon University, Japan)

OS13-1 *A High-speed 3D image Measurement Method*
　　　Ke Sun, Yundi Yao, Cunwei Lu (Fukuoka Institute of Technology, Japan)

OS13-2 *3-D face recognition method based on optimum 3-D image measurement technology*
　　　Hiroya Kamitomo, Yao Xu, Cunwei Lu (Fukuoka Institute of Technology, Japan)

OS13-3 *User study of a life-supporting humanoid directed in a multimodal language*
　　　T. Oka (Nihon University, Japan)
　　　T. Abe (Nihon Computer Kaihatsu Co. Ltd, Japan)
　　　K. Sugita, M. Yokota (Fukuoka Institute of Technology, Japan)

OS13-4 *A multimodal language to communicate with life supporting robots through a touch screen and a speech interface*
　　　T. Oka, H. Matsumoto, R. Kibayashi (Nihon University, Japan)

OS13-5 *Some consideration on user interface switching functions for the weaker at IT*
Shinichi Inenaga, Kaoru Sugita (Fukuoka institute of technology, Japan)
Tetsushi Oka (Nihon University, Japan)
Masao Yokota (Fukuoka institute of technology, Japan)

11:05~12:05 GS9
【Human-machine cooperative systems & Human-welfare robotics II】
Chair: N. Okada (Kyushu University, Japan)

GS9-1 *Crutch gait pattern for robotic orthosis by the feature extraction*
In Hun Jang, Jun-Young Jung, Duk-Yeon Lee, DongWook Lee, Ho-Gil Lee, HyunSub Park
(Korea Institute of Industrial Technology, Republic of Korea)

GS9-2 *Design of personal support system in telephone correspondence using smart phone*
Hiroyuki Nishiyama, Fumio Mizoguchi (Tokyo University of Science, Japan)

GS9-3 *Advanced networking and robotics for societal engagement and support of elders*
Peter Sapaty (National Academy of Sciences, Ukraine)
Masanori Sugisaka (Nippon Bunri University, Japan)

GS9-4 *Construction of the muscle fatigue evaluation model based on accuracy of power*
Akihiro Suzuki, Norihiko Kato, Yoshihiko Nomura, Hirokazu Matsui (Mie University, Japan)

13:15~14:45 OS9【Computer vision and sound analysis】
Chair: Y. Yoshitomi (Kyoto Prefectural University, Japan)
Co-Chair: M. Tabuse (Kyoto Prefectural University, Japan)

OS9-1 *Outdoor autonomous navigation using SURF features*
M. Tabuse, T. Kitaoka (Kyoto Prefectural University, Japan)
D. Nakai (Kyoto Prefectural Subaru High School, Japan)

OS9-2 *Facial expression recognition of a speaker using front-view face judgment, vowel
judgment and thermal image processing*
T. Fujimura (Works Applications Co. Ltd, Japan)
Y. Yoshitomi, T. Asada, M. Tabuse (Kyoto Prefectural University, Japan)

OS9-3 *Facial expression recognition of a speaker using vowel judgment and thermal image
processing*
Y. Yoshitomi, T. Asada (Kyoto Prefectural University, Japan)
K. Shimada (Nova System Co., Ltd., Japan)
M. Tabuse (Kyoto Prefectural University, Japan)

OS9-4 *A human-machine cooperative system for generating sign language animation using thermal image
processing, fuzzy algorithm, and simulated annealing*
T. Asada, Y. Yoshitomi (Kyoto Prefectural University, Japan)

OS9-5 *Music recommendation system using the time-series discrete wavelet transform and the fastICA*
K. Horiike (Taka Dance Fashion Co., Ltd., Japan)
Y. Yoshitomi (Kyoto Prefectural University, Japan)
T. Tokuyama (Shofu Inc., Japan)
M. Tabuse (Kyoto Prefectural University, Japan)

OS9-6 *Music recommendation system aimed at improving recognition ability*
　　　 H. Konishi, Y. Yoshitomi (Kyoto Prefectural University, Japan)

16:00~17:30　　GS18 【Robotics II】
Chair: E. Inohira (Kyushu Institute of Technology, Japan)

GS18-1 *DEA various method used Restricted Multiplier DEA*
　　　 Shingo Aoki, Ryota Gejima, Tomoharu Nakashima (Osaka Prefecture University, Japan)

GS18-2 *Efficient distributed ontology management scheme for inference in surveillance networks*
　　　 Soomi Yang (The University of Suwon, Korea)

GS18-3 *Recovery technique from classified errors in adjustment tasks of domestic appliances*
　　　 Akira Nakamura, Yoshihiro Kawai (National Institute of Advanced Industrial Science and
　　　 Technology, Japan)

GS18-4 *A visual debugger for developing RoboCup soccer 3D agent*
　　　 Yosuke Nakamura, Tomoharu Nakashima (Osaka Prefecture University, Japan)

GS18-5 *Development of pulse control type MEMS micro robot with hardware neural network*
　　　 Kazuto Okazaki, Tatsuya Ogiwara, Dongshin Yang, Kentaro Sakata, Ken Saito, Yoshifumi Sekine,
　　　 Fumio Uchikoba (Nihon University, Japan)

Room D
8:40~9:55　　GS15 【Neural networks II】
Chair: N. Kamiura (University of Hyogo, Japan)

GS15-1 *Medical image diagnosis of lung cancer by revised GMDH-type neural network using various kinds
　　　 of neurons*
　　　 Tadashi Kondo, Junji Ueno (The University of Tokushima, Japan)

GS15-2 *Neural Network application using GPGPU*
　　　 Yuta Tsuchida, Michifumi Yoshioka (Osaka Prefecture University, Japan)

GS15-3 *Evaluation of an optimal design method for multilayer perceptron by using the Design of
　　　 Experiments*
　　　 E. Inohira, H. Yokoi (Kyushu Institute of Technology, Japan)

GS15-4 *A learning method for dynamic Bayesian network structures using a multi-objective particle swarm
　　　 optimizer*
　　　 Kousuke Shibata, Hidehiro Nakano, Arata Miyauchi (Tokyo City University, Japan)

GS15-5 *Remarks on folding behavior of mapping capability of neural network direct controller for
　　　 many-to-one plant*
　　　 Takayuki Yamada (Ibaraki University, Japan)

11:05~12:20 OS12 【Special environment navigation and localization】
Chair: J. M. Lee (Pusan National University, South Korea)

OS12-1 *Optimal posture control of two wheeled inverted pendulum robot on a slanted surface*
Youngkuk Kwon, Joonbae Son, Jaeoh Lee, Jongho Han, Jangmyung Lee (Pusan National University, Korea)

OS12-2 *Efficient CAN-based network for marine engine state monitoring system*
Junseok Lee, Yoseop Hwang, Jaehan Jo, Jangmyung Lee (Pusan National University, Korea)

OS12-3 *Localization Algorithm using Virtual Label for a Mobile Robot in Indoor and Outdoor Environment*
Kiho Yu, Mincheol Lee, Junghun Heo, Youngeun Moon (Pusan National University, South Korea)

OS12-4 *Potential field method applied on the navigation of multiple mobile robots with limited ultrasonic sensing*
Chiyen Kim, Mincheol Lee, Junyoung Beak, Chibeom Noh (Pusan National University, South Korea)

OS12-5 *Adaptive tuning of a Kalman filter using Fuzzy logic for attitude reference system*
Taerim Kim, Joocheol Do, Eunkook Jung, Gyeongdong Baek, Sungshin Kim (Pusan National University, South Korea)

13:15~14:30 GS17 【Robotics I】
Chair: D. W. Lee (Korea Institute of Industrial Technology, Korea)

GS17-1 *Trajectory control of biomimetic robots for demonstrating human arm movements*
T. Kashima, M. Iwaseya (Tomakomai National College of Technology, Japan)

GS17-2 *A study on reinforcement learning scheme in cooperative network-systems of sensor nodes and mobile robots*
Koichi Hirayama, Akihide Utani, Hisao Yamamoto (Tokyo City University, Japan)

GS17-3 *Towards the automation of cashew shelling operation*
Son Doan Tran (Ho Chi Minh University of Technology, Vietnam)
Naoki Uchiyama, Suguru Kirita, Norifumi Yamanaka (Toyohashi University of Technology, Japan)
Phat Minh Ho (Ho Chi Minh University of Technology, Vietnam)

GS17-4 *Research on the velocity variation method for precise motion transmission*
Masaharu Komori, Jungchul Kang, Yukihiko Kimura, Fumi Takeoka (Kyoto University, Japan)

GS17-5 *Towards the enhancement of biped locomotion and control techniques - walking pattern classification*
Basak Yuksel (Mitsubishi Electric Corporation, Advanced Technology R&D Center, Japan and Middle East Technical University, Turkey)
Kemal Leblebicioğlu (Middle East Technical University, Turkey)

16:00~17:30   GS13 【Mobile vehicles】
Chair: F. Dai (Tianjin University of Science & Technology, China)

GS13-1 *Geometrical analysis and design of motion transmitting element for mobile vehicles*
Masaharu Komori, Fumi Takeoka, Jungchul Kang, Yukihiko Kimura (Kyoto University, Japan)

GS13-2 *Underwater unknown acoustic source localization based on Sound Propagation Loss: theory analysis and simulation results*
Han Zhang, Bin Fu, Chunhu Liu, Lian Lian (Shanghai Jiao tong University, China)

GS13-3 *Position recognition system of autonomous vehicle via Kalman filtering*
Dong Jin Kim (Pusan National University, Korea)
Jong Il Bae (Pukyung National University, Korea.)
Kil Soo Lee, Dong Seok Lee, Yun Ja Lee, Man Hyung Lee (Pusan National University, Korea)

GS13-4 *Dynamic modeling, stability and energy efficiency analysis of crab walking of a six-legged robot (**withdrawal**)*
Shibendu Shekhar Roy (National Institutes of Technology, India)
Dilip Kumar Pratihar (Indian Institutes of Technology, India)

GS13-5 *Motion analysis of towed vehicle on survey system for deep sea*
Kohei Oshima, Etsuro Shimizu, Masanori Ito, Sadanobu Omichi (Tokyo University of Marine Science and Technology Japan)

GS13-6 *Path planning of an autonomous mobile robot considering region with velocity constraint in real environment*
Tae Hyon Kim (Kyoto University, Japan)
Kiyohiro Goto (The University of Electro-Communications, Japan)
Hiroki Igarashi, Kazuyuki Kon, Noritaka Sato, Fumitoshi Matsuno (Kyoto University, Japan)

January 29 (Saturday)

8:00~ Registration

Room C
8:40~9:55   OS14【Dynamical information processing in the brain】
Chair: H. Suzuki (The University of Tokyo, Japan)
Co-Chair: T. Kohno (The University of Tokyo, Japan)

OS14-1 *Signal transmission in multilayer asynchronous neural networks*
Wataru Kobayashi, Makito Oku, Kazuyuki Aihara (The University of Tokyo, Japan)

OS14-2 *A two-variable silicon neuron circuit based on Izhikevich model*
Nobuyuki Mizoguchi, Yuji Nagamatsu, Kazuyuki Aihara, Takashi Kohno (The University of Tokyo, Japan)

OS14-3 *A three-variable silicon neuron circuit*
Yohei Nakamura, Kazuyuki Aihara, Takashi Kohno (University of Tokyo, Japan)

OS14-4 *Theory of mind in a microscopic pedestrian simulation model*
   Ryo Adachi, Kazuyuki Aihara (The University of Tokyo, Japan)

OS14-5 A n*eural network model for categorical effects in color memory*
   Chihiro Imai (University of Tokyo, Japan)
   Satohiro Tajima (Japan Broadcasting Corporation, Japan)
   Kazuyuki Aihara, Hideyuki Suzuki (University of Tokyo, Japan)

10:30~12:15   OS6【AI-based systems for human awareness promotion】
Chair: K Hashimoto (Osaka Prefecture University, Japan)
Co-Chair: K. Takeuchi (Osaka Electro-Communication University, Japan)

OS6-1 *A Survey of AI-based systems for human awareness promotion in meta-cognition*
   Kiyota Hashimoto, Kazuhisa Seta, Hiroshi Tsuji (Osaka Prefecture University, Japan)
   Kazuhiro Takeuchi (Osaka Electro-Communication University, Japan)

OS6-2 *A multilingual problem-based learning environment for awareness promotion*
   Ryusuke Taguchi, Katsuko T. Nakahira (Nagaoka University of Technology, Japan)
   Hideyuki Kanematsu (Suzuka National College for Technology, Japan)
   Yoshimi Fukumura (Nagaoka University of Technology, Japan)

OS6-3 *An effective visualization of style inconsistencies for interactive text editing*
   Kazuki Shimamura, Kazuhiro Takeuchi (Osaka Electro-Communication University, Japan)
   Kiyota Hashimoto (Osaka Prefecture University, Japan)

OS6-4 *An intelligent meta-learning support system through presentation*
   Kazuhisa Seta (Osaka Prefecture University, Japan)

OS6-5 *A task ontology construction for presentation skills*
   Kiyota Hashimoto (Osaka Prefecture University, Japan)
   Kazuhiro Takeuchi (Osaka Electro-Communication University, Japan)

OS6-6 *Country domain governance: An analysis by datermining of country domains*
   Katsuko T. Nakahira, Hiroyuki Namba, Minehiro Takeshita, Shigeaki Kodama, Yoshiki Mikami
   (Nagaoka University of Technology, Japan)

OS6-7 *Extraction and comparison of tourism information on the web*
   Xiaobin Wu, Sachio Hirokawa, Chengjiu Yin, Tetsuya Nakatoh, Yoshiyuki Tabata (Kyushu
   University, Japan)

13:10~14:40   OS20【Embracing complexity in sensor system organization】
Chair: Y. Ishida (Toyohashi University of Technology, Japan)
Co-Chair: Y. Watanabe (Nagoya City University, Japan)
K. Harada (Toyohashi University of Technology, Japan)

OS20-1 *Performance evaluation of immunity-based statistical en-route filtering in wireless sensor networks*
   Yuji Watanabe (Nagoya City University, Japan)

OS20-2 *Improvement of immunity-based diagnosis for a motherboard*
Haruki Shida, Takeshi Okamoto (Kanagawa Institute of Technology, Japan)
Yoshiteru Ishida (Toyohashi University of Technology, Japan)

OS20-3 *Visualization of keystroke data and its interpretation*
T. Samura, K. Tani (Akashi National College of Technology, Japan)
Y. Ishida (Toyohashi University of Technology, Japan)

OS20-4 *Extraction of learning point by visualization of skill*
Shihoko Kamisato, Yukihiro Mori, Nobuhiro Yamashiro, Kentaro Noguchi (Okinawa National
College of technology, Japan)
Yoshiteru Ishida (Toyohashi University of Technology, Japan)

OS20-5 *Prediction of electron flux environment at geosynchronous orbit using neural network technique*
Kentarou Kitamura, Yusuke Nakamura (Tokuyama College of Technology, Japan)
Masahiro Tokumitsu,Yoshiteru Ishida (Toyohashi University of Technology, Japan)
Shinichi Watari (National Institute of Information and Communications Technology, Japan)

OS20-6 *A diagrammatic classification in a combinatorial problem: The case of a Stable Marriage Problem*
Tatsuya Hayashi, Yoshikazu Hata, Yoshiteru Ishida (Toyohashi University of Technology, Japan)

15:00~16:45   OS22【Robotics and pattern recognition】
Chair: C. Zhang (Tsinghua University, China)
Co-Chair: T. Zhang (Tsinghua University, China)

OS22-1 *Application of the genetic algorithm on face recognition*
Fengzhi Dai (Tianjin University of Science and Technology, China)
Liqiang Shang (Vestas Wind Technology (China) Co., Ltd, China)
Naoki Kushida (Oshima National College of Maritime Technology, Japan)
Masanori Sugisaka (Nippon Bunri University, ALife Robotics Co., Ltd, Japan)

OS22-2 *Study on the disturbance rejection of Virtual Slope Walking by Stepper-2D Robot*
Mingguo Zhao (State Key Laboratory of Robotics and System (HIT) and Tsinghua University,
China)
HaoDong, Naiyao Zhang (State Key Laboratory of Robotics and System (HIT), China)

OS22-3 *A new method for mobile robots to avoid collision with moving obstacles*
Yi Zhu, Tao Zhang, Jingyan Song (Tsinghua University, China)
Masatoshi Nakamura (Saga University, Japan)

OS22-4 *Some thought for the Mckibben muscle robots*
Huailin Zhao (Shanghai Institute of Technology, China)
Xiaoqing Jia (Shanghai Maritime University, China)
Masanori Sugisaka (Nippon Bunri University, Japan)

OS22-5 *Vehicle 3D estimation based on time series images and prior knowledge*
Haoyin Zhou, Tao Zhang, Changshui Zhang, Peng He (Tsinghua University, China)

OS22-6 *Automatic drawing of correct topographical distribution of EEG rhythms based on unified suitable reference selection*
Bei Wang, Xingyu Wang (East China University of Science and Technology, China)
Akio Ikeda (Kyoto University, Japan)
Takashi Nagamine (Sapporo Medical University, Japan)
Hiroshi Shibasaki (Takeda General Hospital Research, Japan)
Masatoshi Nakamura (Saga University, Japan)

OS22-7 *Research on surface crack detection based on laser scanning and image processing techniques*
Guangming Cai, Jiwu Wang, Mingcheng E, Wenliang Guo (Beijing Jiaotong University, China)
Sugisaka Masanori (Nippon Bunri University, Japan)

Room D
8:40~9:55   GS6 【Data mining】
Chair: J. S. Shieh (Yuan Ze University, Taiwan)

GS6-1 *Development of motion analysis system using acceleration sensors for tennis and its evaluations*
Takaya Maeda, Kenichirou Fuji, Hiroki Tamura, Koichi Tanno (University of Miyazaki, Japan)

GS6-2 *Discriminate approach for data selection in data envelopment analysis*
Akio Naito, Shingo Aoki (Osaka Prefecture University, Japan)

GS6-3 *Proposal of recommender system simulator based on small-world model*
Ryosuke Saga, Kouki Okamoto (Kanagawa Institute of Technology, Japan)
Hiroshi Tsuji (Osaka Prefecture University, Japan)
Kazunori Matsumoto (Kanagawa Institute of Technology, Japan)

GS6-4 *Construction and analysis of purchase factor model by using creativity method*
Kodai Kitami, Ryosuke Saga, Kazunori Matsumoto (Kanagawa Institute of Technology, Japan)

GS6-5 *Developing a monitoring psychological stress Index system via photoplethysmography*
Jiann-Shing Shieh[1], Yu-Ren Chiou (Yuan Ze University, Taiwan)
Shou-Zen Fan (National Taiwan University, Taiwan)

10:30~11:45   GS11 【Image processing II】
Chair: J. Wang (Beijing Jiaotong University, China)

GS11-1 *Simple analog-digital circuit for motion detection and its application to target tracking system*
Takuya Yamamoto, Kimihiro Nishio (Tsuyama National College of Technology, Japan)

GS11-2 *Analog motion detection circuit using CCD camera based on the biological vision system and its application to mobile robot*
Yasuyuki Kondo, Takumi Yamasaki, Kimihiro Nishio (Tsuyama National College of Technology, Japan)
Toshinori Furukawa (Kurashiki University of Science and the Arts, Japan)

GS11-3 *Real-time visual target tracking for Augmented Reality (**withdrawal**)*
Donghoon Lee (University of Science and Technology, Korea)
Inhun Jang, Hyunsub Park, Moonhong Baeg (Korea Institute of Industrial Technology, Korea)

GS11-4 *Detecting human flows on a road different from main flows*
　　　Mison Park, Joo Kooi Tan, Yuuki Nakashima, Hyongseop Kim, Seiji Ishikawa
　　　(Kyushu Institute of Technology, Japan)

GS11-5 *Study on the height measurement based on the image processing technique*
　　　Jiwu Wang, Weijie Gao, Yisong Wang (Beijing Jiaotong University, China)
　　　Masanori Sugisaka (Nippon Bunri University, Japan)

13:10~14:40　　OS21【Learning control and robotics】
Chair: H. H. Lee (Waseda University, Japan)
Co-Chair: H. Ogai (Waseda University, Japan)

OS21-1 *A neuro PID control of power generation using low temperature gap*
　　　Kun-Young Han, Hee-Jae Park, Hee-Hyol Lee (Waseda University, Japan)

OS21-2 *An efficient identification scheme for nonlinear polynomial NARX model*
　　　Yu Cheng, Miao Yu, Lan Wang, Jinglu Hu (Waseda University, Japan)

OS21-3 *Traffic signal control of multi-forked road*
　　　ChengYou Cui, Mizuki Takamura, Hee-Hyol Lee (Waseda University, Japan)

OS21-4 *Control design methods for platooning in robot car*
　　　Ryo Takaki, Xin Zhao, Harutoshi Ogai (Waseda University, Japan)

OS21-5 *Building of reverse logistics model in reusable recovery and optimization considering transportation,*
　　　inventory, and backorder costs
　　　Jeong-Eun Lee, Hee-Hyol Lee (Waseda University, Japan)

OS21-6 *Advanced pipe inspection robot using rotating probe and image processing*
　　　Ryuta Oyabu, Kentarou Nishijima, Zhicheng Wang, Harutoshi Ogai (Waseda University, Japan)
　　　Bishakh Bhattacharya (Indian Institute of Technology, India)

15:00~16:30　　OS23【Intelligent systems II】
Chair: M. K. Habib (The American University in Cairo, Egypt)
Co-Chair: Y. I. Cho (University of Suwon, Korea)

OS23-1 *Intelligent speech recognition filtering*
　　　Yong Im Cho (University of Suwon, Korea)

OS23-2 *Multi robotic system and the development of cooperative navigation behaviors for humanitarian*
　　　demining
　　　Maki K. Habib (The American University in Cairo, Egypt)

OS23-3 *Development of Flexible Surgical Manipulator for Natural Orifice Transluminal Endoscopic*
　　　Surgery
　　　Jungwook Suh, Hoseok Song, Kiyoung Kim, Jungju Lee (Korea Advanced Institute of Science and
　　　Technology, Republic of Korea)

OS23-4 *Swing-up and LQR stabilization of rotary inverted pendulum*
　　　Minho Park, Yeoun-Jae Kim, Ju-Jang Lee (Korea Advanced Institute of Science and Technology,
　　　Republic of Korea)

OS23-5 *Intelligent information retrieval system*
Young Im Cho (University of Suwon, Korea)

OS23-6 *A study on real-time face verification and tracking with segmented common vector*
Dongkyu Ryu, Minho Park, Ju-Jang Lee (Korea Advanced Institute of Science and Technology, Republic of Korea)

Room E
8:40~9:55   GS14 【Neural networks I】
Chair: T. Yamada (Ibaraki University, Japan)

GS14-1 *A study of SVM using the combination with online learning method and Midpoint-Validation Method*
Shingo Yamashita, Takeshi Yoshimatsu, Hiroki Tamura, Koichi Tanno (University of Miyazaki, Japan)

GS14-2 *Video object segmentation using color-component-selectable learning for self-organizing maps*
Shin-ya Umata, Naotake Kamiura, Ayumu Saitoh, Teijiro Isokawa, Nobuyuki Matsui (University of Hyogo, Japan)

GS14-3 *Properties of localized oscillatory excitation on the non-linear oscillatory field*
Ryota Miyata, Koji Kurata (University of the Ryukyus, Japan)

GS14-4 *Multiple Granger causality tests for network structure estimation from time-series data*
Hikaru Harima (Kyoto University, Japan)
Shigeyuki Oba (Kyoto University and Japan Science and Technology Agency, Japan)
Shin Ishii (Kyoto University, Japan)

GS14-5 *A simulation study of visual perceptual learning with attentional signals*
Satoshi Naito, Naoto Yukinawa (Kyoto University, Japan)
Shin Ishii (Kyoto University and RIKEN, Computational Science Research Program, Japan)

10:30~12:15   OS15 【Bio-inspired theory and application】
Chair: M. Yasunaga (University of Tsukuba, Japan)
Co-Chair: K. Yamamori (University of Miyazaki, Japan)

OS15-1 *Study of computational performance of Genetic Algorithm for 3-Satisfiability problem*
QingLian Ma, Yu-an Zhang, Makoto Sakamoto, Hiroshi Furutani (University of Miyazaki)

OS15-2 *An adaptive resolution hybrid binary-real coded genetic algorithm*
Omar Abdul-Rahman, Masaharu Munetomo, Kiyoshi Akama (Hokkaido University, Japan)

OS15-3 *Neural network with exponential output neuron for estimation of physiological activities from protein expression levels*
Kazuhiro Kondo, Kunihito Yamamori, Ikuo Yoshihara (University of Miyazaki, Japan)

OS15-4 *Asynchronous migration for parallel genetic programming on computer cluster with multi-core processors*
　　　Shingo Kurose, Kunihito Yamamori, Masaru Aikawa, Ikuo Yoshihara (University of Miyazaki, Japan)

OS15-5 *Classification of species by information entropy and visualization by self-organizing map*
　　　Kentaro Nishimuta, Ikuo Yoshihara, Kunihito Yamamori (University of Miyazaki, Japan)
　　　Moritoshi Yasunaga (University of Tsukuba, Japan)

OS15-6 *Digital-signal-waveform improvement on VLSI packaging including inductances*
　　　H. Shimada, S. Akita, M. Ishiguro, N. Aibe (University of Tsukuba, Japan)
　　　I. Yoshihara (University of Miyazaki, Japan)
　　　M. Yasunaga (University of Tsukuba, Japan)

OS15-7 *Digital-signal improvement-method using Pareto optimization*
　　　S. Akita, H. Shimada, M. Ishiguro, N. Aibe, M. Yasunaga (University of Tsukuba, Japan)
　　　I. Yoshihara (University of Miyazaki, Japan)

13:10~14:55　　GS12 【Learning】
Chair: Y. G. Zhang (Academia Sinica, China)

GS12-1 *Reinforcement learning with the mechanism of short-term depression for learning rate*
　　　S. Kubota (Yamagata University, Japan)

GS12-2 *A method for finding multiple subgoals for reinforcement learning*
　　　Fuminori Ogihara, Junichi Murata (Kyushu University, Japan)

GS12-3 *Temporal difference approach in linearly-solvable Markov decision problems*
　　　M. A. P. Burdelis, K. Ikeda (Nara Institute of Science and Technology, Japan)

GS12-4 *Mutual learning of multi consciousness agent including the ego for autonomous vehicle*
　　　Atsunori Mori, Hirokazu Mastui (Mie University, Japan)

GS12-5 *Reinforced learning by using a learned results of a different form robot*
　　　Nobuo Shibata, Hirokazu Matsui (Mie University, Japan)

GS12-6 *The acquisition of sociality by using Q-learning in a multi-agent environment*
　　　Yasuo Nagayuki (Otemae University, Japan)

GS12-7 *Effect of interaction between rules on rule dynamics in multi-group minority game*
　　　Takashi Sato (Okinawa National College of Technology, Japan)

15:00~16:00　　GS20 【Robotics IV】
Chair: N. Uchiyama (Toyohashi University of Technology, Japan)

GS20-1 *Design of the android robot head for stage performances*
　　　Dongwoon Choi, Dong Wook Lee, Duk Yeon Lee, Jun Young Jung, Hogil Lee (Korea Institute of Industrial Technology, Korea)

GS20-2 *Implementation of IMU using wavelet transform and variable IIR filter*
    Woojin Seo, Bongsu Cho (Pusan National University, Korea)
    Jaehong Lee (Hyosung Industrial Machinery, Korea)
    Kwang Ryul Baek (Pusan National University, Korea)

GS20-3 *Development of crawler type rescue robot with slide mechanism*
    Go Hirano (Kinki University, Japan)
    Seiji Furuno (Kitakyushu National College of Technology, Japan)

GS20-4 *Proposal of intelligence module type robot that can exchange it in seamless*
    Shunta Takahashi, Kohei Miyata, Yuhki Kitazono, Lifeng Zhang, Seiichi Serikawa (Kyushu Institute of Technology, Japan)

Room F
8:40~10:10　OS19【Embracing complexity in natural intelligence】
Chair: Y. Ishida (Toyohashi University of Technology, Japan)
Co-Chair: T. Okamoto (Kanagawa Institute of Technology, Japan)
    K. Harada (Toyohashi University of Technology, Japan)

OS19-1 *A systemic payoff in a self-repairing network*
    Masahiro Tokumitsu, Yoshiteru Ishida (Toyohashi University of Technology, Japan)

OS19-2 *Effects of a membrane formation in Spatial Prisoner's Dilemma*
    Yuji Katsumata, Yoshiteru Ishida (Toyohashi University of Technology, Japan)

OS19-3 *Extracting probabilistic cellular automata rules from spatio-temporal patterns and analyzing features of these rules*
    Takuya Ueda, Yoshiteru Ishida (Toyohashi University of Technology, Japan)

OS19-4 *Emergence of observable rules in a spatial game system*
    K. Harada, Y. Ishida (Toyohashi University of Technology, Japan)

OS19-5 *An artificial intelligent membrane for detect network intrusion*
    Takeshi Okamoto (Kanagawa Institute of Technology, Japan)

OS19-6 *A dynamic Houjin (square) and a symmetric Houjin*
    Yuki Tsuzuki, Yoshiteru Ishida (Toyohashi University of Technology, Japan)

10:30~12:15　OS16【Biomimetic machines and robots】
Chair: K. Watanabe (Okayama University, Japan)
Co-Chair: K. Izumi (Saga University, Japan)

OS16-1 *Basic position/force control of single-axis arm designed with an ultrasonic motor*
    Keisuke Ogiwara, Fusaomi Nagata (Tokyo University of Science, Japan)
    Keigo Watanabe (Okayama University, Japan)

OS16-2 *Cooperative swarm control for multiple mobile robots using only information from PSD sensors*
    Takahiro Yamashiro, Fusaomi Nagata (Tokyo University of Science, Japan)
    Keigo Watanabe (Okayama University, Japan)

OS16-3 *Control of movement on stairs for a cleaning robot*
Takahisa Kakudou, Keigo Watanabe, Isaku Nagai (Okayama University, Japan)

OS16-4 *Jumping rhythm generator by CPG for a multi-legged robot*
Masaaki Ikeda, Kiyotaka Izumi (Saga University, Japan)
Keigo Watanabe (Okayama University, Japan)

OS16-5 *A bearing-only localization solved by an unscented Rauch-Tung-Striebel smoothing*
Saifudin bin Razali, Keigo Watanabe, Shoichi Maeyama (Okayama University, Japan)

OS16-6 *Trajectory tracking control for nonholonomic mobile robots by an image-based approach*
Tatsuya Kato, Keigo Watanabe, Shoichi Maeyama (Okayama University, Japan)

OS16-7 *A nonholonomic control method for stabilization an X4-AUV*
Zainah Md. Zain, Keigo Watanabe (Okayama University, Japan)
Kiyotaka Izumi (Saga University, Japan)
Isaku Nagai (Okayama University, Japan)

15:00~16:00　GS1　【Artificial intelligence】
Chair: T. Nakashima (Osaka Prefecture University, Japan)

GS1-1 *Adaptive co-construction of state and action spaces in reinforcement learning*
Masato Nagayoshi (Niigata College of Nursing, Japan)
Hajime Murao, Hisashi Tamaki (Kobe University, Japan)

GS1-2 *Autonomous acquisition of cooperative behavior based on a theory of mind using parallel Genetic Network Programming*
Kenichi Minoya, Takaya Arita (Nagoya University, Japan)
Takashi Omori (Tamagawa University, Japan)

GS1-3 *A comparison of learning performance in two-dimensional Q-learning by the difference of Q-values alignment*
Kathy Thi Aung, Takayasu Fuchida (Kagoshima University, Japan)

GS1-4 *Robot path planning in unknown environment based on ant colony algorithm*
Cu Xuan Tien, Young Sik Hong (Dongguk University, South Korea)